PSYCHE

VOL. XVIII. OCTOBER, 1911. No. 5

ON CERTAIN *OLENE* SPECIES.

By William Barnes, M.D., and J. McDunnough, Ph.D.,
Decatur, Illinois.

A very interesting article on our present knowledge of the genus *Olene* has recently appeared from Doctor Dyar's pen in the Proceedings of the Entomological Society of Washington (Vol. XIII, p. 16, 1911.) This spring we have received several larvæ belonging to three different species from Southern Pines, North Carolina, and offer the following observations in the hope that they may perhaps serve somewhat to clear away a little of the existing doubt regarding the identity of several of the older species.

O. achatina A. & S.

We received two larvæ which agree fairly closely with Abbott's figure. The two anterior and two posterior lateral hair-pencils combined with the lack of the dorsal hair-pencil from the tuft on abdominal segment VIII, are distinguishing features. Unfortunately both larvæ were parasitized so the imago was not reared; the larvæ were oak feeders. We append a fuller description for the sake of future reference.

Larva. Head blackish; body black, marbled strongly with white with two anterior and two posterior long black hair-pencils and very thick dark tufts on abdominal segments I–IV and VIII, intermingled laterally with plumed white hairs; of these tufts the one on segment IV is the smallest and contains the most white hairs. Tubercles dark, smaller than in allied species; dorsal tubercles with black bristles and numerous plumed white hairs; tubercle III with several bristles, one central black plume and numerous white ones; lateral tubercles with spreading white plumes and several central blackish ones. Abdominal segments VI and VII with conical, whitish, eversible, dorsal glands; legs and prolegs flesh color; spiracles creamy with black rim. Length full grown about 40 mm.

O. leucophaea A. & S.

Abbott's figure of the larvæ of this species is rather inaccurate. As Doctor Dyar has pointed out the figure shows a double dorsal hair-pencil from abdominal segment VIII and seven dorsal tufts; this must, we think, be attributed to inaccuracies in the drawing, as it is rather improbable that the abdominal segments V–VII would ever be tufted, VI and VII containing normally the eversible dorsal glands, which indeed are present in Abbott's figure, but almost hidden in the tufts; a double dorsal pencil seems equally improbable.

Allowing for these inaccuracies two larvæ which we successfully bred through on apple agree well with Abbott's figure in the general yellow coloration, which is quite characteristic. We would describe them as follows:

Larva. Head black with pale yellow mouth parts; body gray-green, marbled slightly with ochreous and with a broad blackish dorsal band on abdominal segments V–IX; dorsal tufts on abdominal segments I–IV and VIII dark ochreous, the latter with a long black hair-pencil; two anterior and two posterior lateral black hair-pencils; tubercles pale ochreous, with numerous plumed hairs, similar in color to the tufts; eversible conical glands of abdominal segments VI and VII pale yellowish. Prolegs flesh color with dark lateral plate. Spiracles pale cream, with black rim. Length, 40–55 mm.

The female larva seems to undergo an extra skin shedding. From the two larvæ received, we bred one male and one female, which we figure in the accompanying plate. Abbott's figures are not good. In the male the median area is much too strongly shaded with white and the basal dash too prominent; the submarginal row of dark spots is more suffused in our specimen, but the white spot at inner angle is even more distinct than given by Abbott; the course of the t. a. line is practically straight; the line itself is angled three times outwardly; the t. p. line is much as in the left-hand side of Abbott's figure. Abbott's figure of the female is very rough; the basal portion of wing contains far too much white and the t. a. line is too regular. In our specimen there exists a general diffuseness both in color and markings towards inner margin; the white spot at inner angle is present as in the male; the hind wings are lighter than in Abbott's figure and show a distinct dark postmedial line.

O. interposita Dyar.

Four or five larvæ found on a species of pine agree very exactly with Mr. Beutenmuller's description of the larva of *montana*, assuming that Doctor Dyar is correct in stating that a black hair-pencil accompanies joint twelve, a fact not mentioned by Beutenmuller. These produced two males and one female of what we consider to agree most closely with var. *interposita* Dyar. This would support Doctor Dyar's theory that *manto*, *interposita* and *montana* are but three forms of one species. The ground color of the female is much lighter brown than in the males, and the closeness of the t. a. and t. p. lines on inner margin is apparently characteristic. We refer to the plate for further details.

In conclusion we venture to describe as a new species a form from British Columbia, which is totally unlike anything we know, but which may possibly be but an extreme melanic race.

Olene styx n. sp.

Primaries deep black-brown; all traces of maculation practically lost with the exception of an obscure black basal dash, a large reniform very faintly outlined in whitish and a small white spot above anal angle. Secondaries deep smoky, in the female with outer margin concave below apex, in the male well rounded. Beneath smoky with faint traces of discal spots on both wings. Expanse, male, 32 mm.; female, 36 mm.

Habitat, Duncans, B. C. (Hanham). 1 male, 1 female. Types Coll. Barnes.

DANIEL WILLIAM COQUILLETT.

In the death of Mr. Coquillett on July 8th., entomology has suffered a severe loss, which is a deep personal one to a host of workers who have had the good fortune to know this accomplished student of Diptera.

He was born near Woodstock, Illinois, in 1856, and twenty-four years later began his entomological career with some work on larvæ of Lepidoptera, published in the tenth report of Prof. Cyrus Thomas, who next year make him assistant to the State Entomologist of Illinois. Soon, on account of ill health, he went to Los Angeles, California, where he engaged in entomological work for the U. S. Department of Agriculture, discovering the feasibility of using hydrocyanic acid gas for orchard fumigation, and doing other valuable work in rearing imported scale-insect parasites. In 1896 he was made Honorary Custodian of Diptera in the U. S. National Museum, where he continued to study the taxonomy of Diptera until shortly before his death, publishing a long series of valuable papers.

Mr. Coquillett was one of the most kindly and patient of men, rare attributes which will be cherished in the memory of his many friends.

C. T. Brues.

TIPULA FALLAX AND OTHERS.

By R. W. Doane,
Stanford University, California.

For sometime I have had in my possession a number of species of Tipula with wing markings similar to *T. fallax*, *hebes* and *grata*. *T. hebes* may at once be distinguished by the yellow antennæ with the black rings at the base of each segment beyond the third and by the first posterior cell being black only in the base. All attempts to separate the others on the basis of wing markings or other markings on the body have proved futile. An examination of the hypopygium shows that eight different species, the three just mentioned and five new ones, are represented in the lot.

T. fallax is represented in my collection by specimens from Stanford University and vicinity; Keyport, Washington; Sitka, Alaska. A single female from Oak Creek Cañon, Ariz., is also placed here but it is not impossible to definitely place the female without the males.

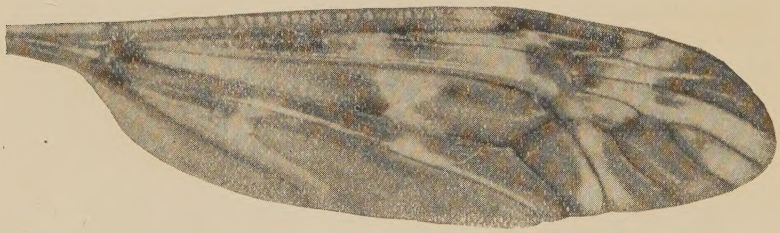
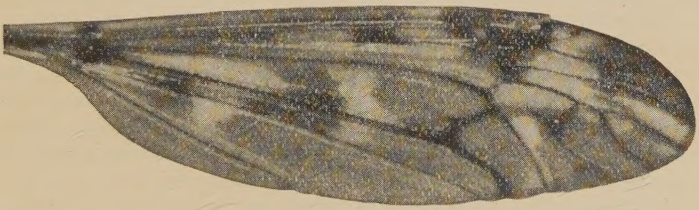


Fig. 1. *Wing of Tipula fallax* Lw.

Another group from Keyport and Olympia, Washington, is represented by ten males and possibly two females. The markings of the wings and body are similar in almost every respect except that as a rule, but not always, the markings are a little more intense. I have always confused this species with *T. fallax* and Snodgrass, in his article on the "Hypopygium of the Tipuladæ," Trans. Amer. Ent. Soc., Vol. XXX, No. 3, relying on my identification, figures this species under that name. A description of the species follows:

Tipula olia sp. nov.

Brown: Head grayish with faint median and lateral brownish lines; rostrum yellow with brown stripes laterally; palpi, brownish yellow, darker toward the base; first and second segments of the antennæ yellow, others brown; mesonotum with three broad brown stripes, the median one is entirely divided by a broad fusiform grayish line, the lateral stripes are also marked but not completely divided by a broad gray line; metanotum and scutellum yellowish gray, the latter with two faint brown spots; pleura grayish with a rather distinct brownish line reaching from the neck almost or quite to the base of the wing; halteres brownish, knobs darker, base yellowish; legs yellowish; tarsi and tips of femora and tibiæ darker; abdomen yellowish brown, with interrupted median and lateral brown lines; posterior margin of each segment grayish; eighth sternite wholly brown, produced posteriorly and ending in three blunt conical projections which are covered with thick short yellow hairs; hypopygium (see Snod. fig. of *T. fallax*) much elongated; ninth tergite brown, lateral margins converging slightly, posterior margin strongly chitinized, extreme tip produced downward into two short sharp curved claws; ninth sternite brown, lighter posteriorly, no pleural sutures, posterior ventral margin deeply notched and provided with two long, slender, sinuous, blade-like processes; lateral margins of the sternite with deep oval incisions which are filled with a whitish membrane; the points that project just above these incisions bear a pair of pendulous appendages which are made up of a somewhat quadrate basal portion and three arms, the upper and middle arms are short incurved, claw-like and chitinous at the tips, the lower arm is long, slender, pointed and membranous; the first pair of appendages are a little more than twice as long as wide with the tip bluntly rounded; the second pair of appendages consists of a membranous basal portion and two strongly chitinized lobes, the largest one triangular and sharp pointed, the smaller one rounded at the tip; the third pair is membranous, roughly quadrate, broadly joined to the middle appendage; the upper margin is provided with fine short hairs and a weakly chitinized ridge sets off a small darker lobe on the posterior dorsal corner; the females that I think belong with this species have the upper valves of the ovipositor long, slender and blunt at tip; lower valves shorter, broad, obtuse; wings, brownish with several whitish hyaline spots in nearly all the cells; a whitish, hyaline, interrupted band beginning in the anterior margin just beyond the stigma extends through the submarginal, first posterior and discal cells and along the edges of the fourth and fifth posterior cells to the posterior margin of the



Tipula olia Doane

wing; first posterior cell almost wholly white, the base and a spot along the anterior margin about the middle being brown. Length, 15 mm., wing, 17mm. Keyport, Wash., 9 males, 2 females; Olympia, Wash., 1 female.

The hypopygium of *T. fallax* differs from *T. alia* in the following particulars: The blade-like processes arising from the posterior incisions of the ninth sternite are broadly triangular, the tip ending in a sharp backward curved claw; the pendulous appendage has but two arms, the middle one being represented by a very short projection, the lower arm is shorter and more slender; there are also other less conspicuous differences but these will serve to separate the two species.

Tipula madera sp. nov.

Brownish: Head brownish yellow, with a faint median and plainer lateral brown lines above; rostrum yellow, with brown stripes laterally; palpi brown, lighter toward the tips; first and second and the extreme base of the third segment of the antennæ, yellow; others, brown; mesonotum grayish pruinose, the usual three brown stripes divided in such a way as to appear as eight separate lines, the lateral pairs uniting anteriorly; metanotum and scutellum grayish with a median brown line, scutellum with brownish spots on the sides; pleura grayish pruinose with a distinct brownish line reaching from the neck to the base of the wings, lower half of sternopleura and the margins of the hypopleura brown; halteres yellow; knobs brown, tips whitish; legs brownish yellow; tarsi and the tips of the femora and tibia darker; abdomen light brown with distinct median and lateral, interrupted, brown lines; eighth sternite brown, yellowish posteriorly, posterior margin with two deep incisions making three distinct lobes, which are covered with short, thick, yellowish and brownish hairs; hypopygium much elongated as in *T. fallax* and *T. alia*; ninth tergite brown somewhat narrowed posteriorly, posterior margin more strongly chitinized, the median portion produced into a short, broad, three-pointed, downward-projecting tooth; ninth sternite brown, yellowish posteriorly, divided ventrally by a broad more membranous area, no pleural sutures; posterior margin with a broad crescent-shaped incision, from the middle of which arises a pair of long strap-like appendages, the inner edges of which are straight, parallel; the outer edges bisinuate; lateral margins with deep oval incisions which are filled with a whitish membrane; the points that project just above these incisions bear a pair of quadrate, weakly-chitinized appendages, the posterior margins of which are deeply notched; the two triangular teeth thus formed are more strongly chitinized and slightly incurved toward the tips; first pair of appendages but little longer than broad; upper edge of second pair of appendages divided into two strongly chitinized unequal teeth; third pair membranous with the base broadly joined to the second; upper valves of ovipositor of female long, narrow, obtusely pointed; lower valves reaching to or beyond the middle of upper valves; wings brownish with several whitish hyaline spots in nearly all the cells, making a pattern exactly like that on the wings of *T. alia* except that the brown is a little more intense. Length 18 mm.; wing 20 mm. Corte Madera Creek, near Stanford University, Cal., 2 males, 1 female. Stanford University, 2 males, 1 female.

Although the markings and general appearance of this species are very like *T. fallax*, the structure of the lateral appendages of the ninth sternite will enable one readily to separate them.

Tipula newcomeri nov. sp.

Brown: Head brownish yellow, with a broad, dorsal, brown stripe; rostrum yellow; palpi brown, the last segment lighter; first and second joints of antennæ yellowish, others brown, cylindrical; collar light brown with three brown spots; mesothorax light brown, with three brown stripes, each of which is divided by a brownish yellow line; coxæ and pleura hoary; scutellum and metanotum yellowish brown with a narrow, median, brown line; halteres brown; extreme base yellow; knobs darker brown; legs yellowish brown, tips of the tibiæ, femora and tarsi, darker; abdomen brownish yellow, with a broad dorsal brown line and narrow interrupted lateral lines; posterior margin of each segment lighter; eighth tergite almost wholly brown, lighter posteriorly; eighth sternite broad, somewhat produced posteriorly, posterior half, particularly the posterior margin and two light colored areas on the posterior lateral angles, thickly covered with short, soft, yellow hairs; ninth tergite wholly brown, a little longer than wide, posterior margin somewhat depressed and with a pair of short, black, downwardly-projecting, hook-like processes; ninth sternite brown, completely divided below by a broad suture which is filled with a white membrane; from the posterior lateral margins of the suture arises a pair of rather long, thin, sharp-pointed, blade-like processes; lateral margins with deep, oval incisions which are filled with a whitish membrane; the points just above these bear a pair of appendages consisting of a slightly chitinized base with three processes, the upper one spatulate and black-tipped, the middle one triangular, sharp-pointed, the lower one long, narrow and slightly curved toward the tip; first pair of appendages broad, brown, tips rounded; second pair rather flattened, edge and tips black; posterior margin of third pair with a deep median incision dividing the appendage into two lobes, the lower one largest, yellowish; the upper one oval, brown, with short brown hairs; the upper valves of the ovipositor long, very slender, tips rounded, lower valves rather long, narrow, sides parallel, tip rounded; wings with a brownish tinge, with several irregular whitish spaces, and darker brown spots; two irregular whitish spots in the middle of the second basal cell, the first sending an arm across the anal into the axillary cell, the second sending an arm into the anal cell; the posterior half of the first basal cell, the bases of both the marginal cells, the submarginal, and the first and fourth posterior cells, whitish; discal cell, almost wholly whitish; distal portion of the first posterior cell somewhat lighter, a brownish spot over the origin of the præfurca and a larger one over the stigma; veins brown. Length male 13 mm., wing 15 mm.; female 15 mm., wing 15 mm. Deer Park, California. Four males, four females.

The hypopygium differs from *T. alia* in the following particulars: ninth sternite divided; the blade-like processes arising from the posterior margin are shorter and more triangular, in this respect more like *T. fallax* from which it may be separated by the character of the pendulous appendage which has three arms as in *T. alia* instead of two as in *T. fallax*.

Tipula coloradensis sp. nov.

Brown: Head light brown with a broad, brown line above; rostrum yellowish, darker above; palpi brown, lighter toward the tips; first and second segments of antennæ yellow, others brown, cylindrical; antennæ of female with third and fourth joints more or less yellow; collar yellowish, with a median brown spot; mesonotum grayish brown, with three brown stripes each divided by a rather broad, grayish line; the gray line dividing the median brown line much narrowed anteriorly; pleura hoary; mesopleura and sternopleura much darker; a brown line running from the upper angle of the mesopleura to the neck; scutellum yellowish brown with a median darker line; metanotum dark brown; halteres yellowish toward the base, darker toward the tip, knobs brown; legs yellowish, tarsi and tips of femora and tibiæ darker; abdomen yellowish brown, darker posteriorly; eighth sternite wholly brown, posterior portion with very thick rather long yellow hair, posterior margin with a median tuft of yellow hairs and with a pair of rather broad, flat, somewhat triangular, yellowish appendages which are folded back over the posterior-lateral portions of the sternite; ninth tergite very dark brown, about twice as long as wide; posterior lateral angles ending in short blunt points below which is a pair of short triangular strongly chitinized plates; ninth sternite divided below by a rather broad suture which is filled with a whitish membrane, posterior margin with a pair of long twisted heavily chitinized processes which are narrowed toward the tip and then suddenly broadened into flat backward projecting plates; no pleural suture; first pair of appendages broad at the base, narrowing toward the tip which is broadly rounded; the lateral appendages, arising from above the lateral membranous incisions, consist of broad, rather weakly chitinized basal portions from the anterior margins of which projects a short two-pointed process and from the posterior margin a long rather broad membranous lobe with the tips distinctly incurved; upper valves of ovipositor long and very slender; tip rounded; lower valves not reaching to tip of upper valves, broader, flat, tip rounded; wings with a brownish tinge, with a few indistinct whitish spaces as follows: one in the posterior portion of the second basal cell beyond the middle, two near the middle of the anal cell, a larger one extending from the base of the second marginal cell through the discal cell and fading out along the margins of the fourth and fifth posterior cell; distal portion of first posterior cell somewhat lighter; stigma and a small spot over the origin of the præfurca brown; veins brown. Length male and female 15 mm.; wing 15 mm. Tabernash, Col. One male, three females.

A single somewhat lighter female from Arizona seems to belong here also. The brown on the wings of this species is much less intense than in *alia.* The shape of the blade-like processes arising from the posterior margin of the ninth sternite and the pendulous appendages are also quite different.

Tipula rohweri sp. nov.

Grayish brown: Head grayish pruinose with a median brown line above; rostrum light yellow, with brown lateral stripes; palpi brownish, lighter toward the tips; first two segments of antennæ yellow, basal portion of third yellowish; distal portion brownish, other segments brown; mesonotum light brown, each of the three broad brown stripes divided by a grayish brown line; scutellum and metonotum grayish, lighter laterally; pleura grayish pruinose, an interrupted brown line running from the neck to the base of the wings; halteres brown, whitish at the base; legs yellowish brown; tarsi and tips of femora and tibiæ darker; abdomen light brown with a median, lateral, broad, interrupted, brown band, posterior lateral margin of each segment grayish; eighth sternite brown, posterior margin lighter, with two incisions dividing the margin into three prominent lobes each furnished with an abundance of short yellowish hairs; ninth tergite brown, posterior margin with a downward projecting process which ends in two sharp lateral claws and a median blunter tooth; ninth sternite brown, lighter posteriorly, no pleural sutures, divided below by a rather broad more membraneous portion from the posterior margin of which arises a pair of long slender blade-like processes which bend first upward then backward at almost right angles; lateral margins of the sternite with deep oval incisions which are filled with whitish membrane; just above these there arises a pair of membranous appendages which terminate posteriorly in two more strongly chitinized projections, the upper ones broader and somewhat spoon-shaped and the lower narrow and claw-like; upper pair of appendages less than twice as long as wide; second pair of appendages ending in two strongly chitinized teeth, the larger one of which bears on one edge a conspicuous coat of fine yellow hairs; lower pair of appendages comparatively small, membranous; base broadly joined to the second; wings brownish with whitish hyaline spots in all the cells, making a pattern like that on the wings of *T. alia.* Length 15 mm.; wing 17 mm. Florissant, Colo., 3 males and 1 female (type). Big Horn Co., Wyoming, 2 males, 3 females.

This species differs from *T. grata,* which it most closely resembles by being darker the whole body and wings having a grayish rather than a yellowish tinge; antennæ much darker brown; the lower claw-like arm of the lateral membranous appendage much shorter and stouter.

The following table will aid in separating the species:

1. Antennæ yellow, base of each segment black .... **hebes**
Antennæ, except basal segments, brown.................................. 2
2. Lateral appendages of the ninth sternite (below the pleural appendages) without a lower pendulous or claw-like arm..................... **madera**
Lateral appendages with a lower pendulous or claw-like arm................ 3
3. Lateral appendages with only two arms................................. 4
Lateral appendages with three arms.. 6
4. Lower arm of lateral appendage slender; membranous, nearly straight.. **fallax**
Lower arm of lateral appendage more strongly chitinized, claw-like, tip blackish.. 5
5. Lower arm of lateral appendages short, broad, flat................. **rohweri**
Lower arm of lateral appendages long, slender........................ **grata**
6. The two upper arms of lateral appendages consisting of two small subequal, spine-like processes.................................... **coloradensis**
First and second arms of lateral appendages very different in size and shape... 7
7. The blade-like processes arising from the posterior margin of the ninth sternite long, slender, sinuous.. **alia**
The blade-like processes shorter, more triangular............. **newcomeri**

PSEUDOSCORPIONS IN ANT NESTS.

By William Morton Wheeler,
Bussey Institution, Harvard University.

The sporadic occurrence of pseudoscorpions, especially of species of *Chelifer* and *Chernes*, in ant nests has been reported by several authors. Haldemann[1] seems to have been the first to note this occurrence in America. Wasmann[2] states that species of the genus *Chelifer* are not uncommon in ant nests, "but apparently only as occasional inquilines." He also says that he received from Mr. Pergande specimens of *Chelifer* that had been taken in nests of the American *Aphænogaster fulva.* Banks[3] describes several pseudoscorpions taken by Brues in the nests of Texan ants, namely *Chelanops unicolor* with *Eciton cæcum* and *Pachycondyla*

---

[1] On the Occurrence of Cremastocheilus and other Insects in Ant Nests, and of Chelifer found Parasitic under the Elytra of Alaus oculatus. Amer. Journ. Sci. Arts (2) VI, 1848, pp. 148–149; Ann. Mag. Nat. Hist., 1848, pp. 221–222.

[2] Kritisches Verzeichniss der myrmekophilen und termitophilen Arthropoden. Berlin, Felix L. Dames, 1894, p. 193.

[3] The Pseudoscorpions of Texas. Bull. Wis. Nat. Hist. Soc., VI, 1908, pp. 39–42.

harpax, *Ideobisium rufulum* with *Camponotus sansabeanus* and *Olpium minutum* with *Eciton cæcum*. I have myself not infrequently taken single pseudoscorpions of different species in the nests of various ants, and have received them in vials of ants sent to me for identification, but I have till recently supposed that they were accidental intruders and not myrmecophiles in the proper sense of the word.

Donisthorpe[1] gives the following more precise notes on three species of pseudoscorpions which he found in England: "*Chernes scorpioides*, Herm. In May last this species was found in the greatest profusion in *F. rufa* nests at Buddon Wood, Leicestershire. Mr. Wallace Kew, who kindly identified them for me, told me there were males, females, and females carrying eggs externally, present. They occurred in the nests, literally in thousands, especially at the very bottom of the nest. Every handful of the *débris* of the nests placed on paper was seen to be swarming with the *Chelifers*. The ants paid no attention to them. It has been recorded with the same ant in Denmark by Hansen. I have taken it sparingly with *F. rufa* at Weybridge (Ent. Rec., 1907, p. 255), and have intruduced specimens into my observation nests. The ants treated them with indifference. When a *F. rufa* worker was forced to take hold of a *Chelifer*, it dropped it at once. I think it is quite clear that this species, at least, cannot be said to have 'nothing to do with ants.' *Ideoroncus cambridgii*, L. Koch.—Several specimens were found in nests of *L. flavus* at Virtuous Lady Mine, in Devonshire, in April. *Chthonius rayi*, L. Koch, occurred in a nest of *F. rufa* in Parkhurst Forest, Isle of Wight, in April. I have taken this common species before with *L. fuliginosus* at Oxshott."

On January 15, 1811, while collecting at Point Joe, near Pacific Grove, Cal., I came upon many flourishing colonies of *Formica subpolita* nesting under rough stones in the grass near the sea-beach. In every nest there were great numbers of snow-white root-coccids and root-aphids, several small white Isopods of an undescribed species, apparently related to the European *Platyarthrus hoffmanseggi*, and a dozen or more pseudoscorpions. These, which have been kindly identified for me by Mr. H. E. Ewing as specimens of *Chelanops dorsalis* Banks, were clinging to the lower surfaces of the stones, and were usually resting quietly in the small depressions or crevices, with their legs and chelæ folded up against their bodies. They were often covered with clusters of ants which seemed to be quite unaware of their presence. In the same locality and under stones of the same size, there were also many colonies of a Myrmicine ant, *Aphœnogaster subterranea* var. *occidentalis*, but none of these contained any of the insects, Isopods or pseudoscorpions above mentioned. I believe, therefore, that *Chelanops dorsalis* may properly be regarded as a synœkete, or indifferently tolerated guest, of *F. subpolita.* At any rate, the observations here recorded and those of Donisthorpe above quoted, suggest that the association of pseudoscorpions with ants may not be as accidental and insignificant as we have hitherto supposed.

---

[1] On the Founding of Nests by Ants; and a Few Notes on Myrmecophiles. Ent. Rec. and Journ. Var. XXII, 1910.

FLUFFY CECROPIA COCOONS.

By Phil Rau,
St. Louis, Missouri.

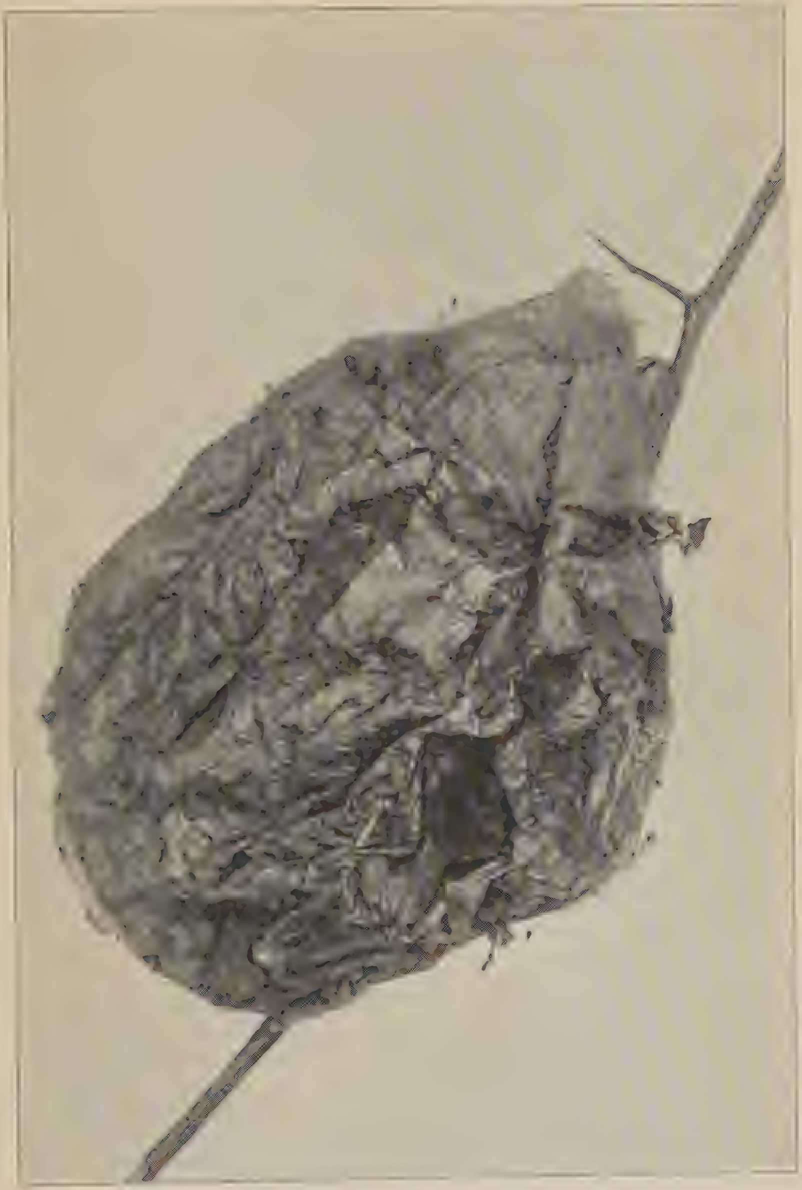
Much discussion has been carried on[1] as to the nature and abundance of the large, loosely woven cocoons of *Samia cecropia* Linn. Chief among the conclusions to be gleaned from these casual observations are: (1) that the fluffy cocoons occur only on low boughs or in damp places; (2) that they bring forth only female insects, and (3) that they harbor only parasitized pupæ. All of the writers agree that they are uncommon, or even "rare."

The following data collected upon this subject during the past two seasons will probably throw some light upon these little understood points.

In the spring of 1910 and also 1911, large numbers of the cocoons were gathered at random about the fields near River des Peres and Macklind Avenue, St. Louis. In making these collections, no appreciable difference was observed in the positions o the two kinds of cocoons, the large, fluffy ones as well as the tightly woven ones occurring in both the high and the low, the dry and the damp positions.

---

[1] Ent. News, Vols. XI–XIII, XVII.



RAU—FLUFFY COCOON OF SAMIA CECROPIA.

The proportion of fluffy cocoons to compact ones was as follows:

Year.	No. fluffy.	No. compact.	Total.
1910	39	166	205
1911	105	560	665

The figures show that in 1910 the baggy cocoons occurred in the proportion, roughly, 1:4, and in 1911, 1:6. Hence they cannot be called rare in this locality.

The records kept at the time of the emergence of the imagines yield the following data:

Year.	Fluffy cocoons	Males.	Females.	Dead.
1910	39	17	22	0
1911	105	50	40	15

This shows that only a small per cent., if any, of the pupæ may have been parasitized. It further shows that sex plays no part in determining the form of the structure, but that individuals of either sex are quite capable of spinning cocoons of this character.

The tightly woven cocoons are so well known that any description would be quite superfluous. In the fluffy ones all degrees of size were found; some only slightly larger than the ordinary compact cocoon and a little more loosely woven. From this they ranged to the size illustrated herewith. This photograph gives the exact size of the largest one found. Most of them, however, were just about one half this size, and varied much in shape.

It was suggested that these individuals must represent a separate and distinct race. So when the female emerged from this large cocoon, it was bred with a male of like character, with the purpose of learning whether or not the tendency to fluffy cocoon spinning might be an inherited characteristic. It was, however, unfortunate that on account of the lack of proper facilities, the larvæ soon died.

But along with this experiment, some interesting data on oviposition were gathered. In the first place, the female was an exceptionally large one, the expanse of the forewings measuring 20 cm. It mated before daybreak, May 18, two days after emerging, and remained in copula the normal length of time, about twenty-four hours. By noon, May 19, it had deposited 358 eggs. For the next two days, no eggs were laid; on the 22d and 23d, 44;

on the 24th, none, and on the 25th, 23 eggs were deposited. The insect died on the 26th, after a normal life of ten days, retaining 93 ova. Thus the total number of eggs carried by this female was 518.[1] It is of interest to note that only the eggs which were deposited on the first day were fertile; although the insect remained *in coitu* the usual length of time, all the eggs deposited subsequently proved infertile.

It is much to be regretted that breeding experiments on the inheritance of fluffy cocoon making could not be carried to completion. This extremely interesting problem should be taken up by some one having proper breeding facilities.

July 29, 1911.

NOTES ON COLEOPTERA FROM CONNECTICUT.

By Alfred B. Champlain,
Agricultural Experiment Station, New Haven, Conn.

Carabidæ

In a previous article, entitled "Some Carabidæ Taken in Connecticut," [2] the author gave notes on a number of species of this family. These additional notes are supplementary, and are the result of further collecting in the state.

Cychrus lecontei Dej. Found this species at night under an arc light, New Haven, May 7; about a week later Mr. B. H. Walden found it at another light.

Cychrus elevatus Fabr. Observed fragments of this species in the remains of an owl pellet. Several years ago in Pennsylvania, I dissected *C. stenostomus* Web. from the stomach of a toad.

Carabus serratus Say. New Haven, May 21, under an arc light. Previous to this year, I had never observed *Cychrus* or *Carabus* at arcs.

Carabus memoralis Mull. This introduced species occurs rather abundantly in one section of New Haven. Mr. J. K. Lewis, while on his way to the Station every morning, from April 25 to May 10, found specimens crushed upon the sidewalk in the vicinity of a light. On May 10, Doctor Britton collected a perfect specimen running upon the sidewalk during the daytime, and that night, Mr. Walden and myself found it at the light. Mr. H. B. Kirk captured a specimen in the same locality, July 7. Our records show that it occurs as an adult from April 2 until November 3.

---

[1] Records kept on the oviposition of sixty-four ordinary cecropias (Trans. Acad. Sci., St. Louis, Vol. XX, p. 316, 1911) showed that the number produced varied from 200 to 480, with an average of 344.

[2] Psyche, vol. 18, p. 35 (1911).

Calosoma externum Say. Wallingford, July 20, taken by Mr. D. J. Caffrey under bands placed for gypsy moth larvæ. *C. willcoxi* Lec. and *C. frigidum* Fabr. common, running over trees and feeding upon canker worms during the period when these larvæ were the most plentiful. *C. frigidum* and *C. calidum* Fabr. common at Wallingford under Gypsy Moth bands.

Elaphrus fuliginosus Say. Lyme, April 30. Two specimens found in swamp.

Clivina rubicunda Lec. Dr. W. E. Britton collected five examples of this rare species at Hamden, May 25, under stones along a stream in the swamp. I found one specimen at Lyme, April 30, in a similar situation.

Patrobus rugicollis Rand. Middlefield. Prof. W. R. Coe.

Pterostichus corrusculus Lec. Single specimens, New Haven, February 5, March 21, and Pomfret, April 10.

Pterostichus vitreus Dej. Ridgefield, March 29, under stones. Taken by J. K. Lewis.

Pterostichus scrutator Lec. is found at Lyme in a swamp about thirty feet in diameter. I have searched for it carefully through all the neighboring country, but without success. It occurs principally in the moss and grass clustered about the bases of skunk cabbage and small bushes, occasionally under stones. I have taken the adults in April, May, August and December.

Olisthopus parmatus Say. New Haven, April 8, one specimen.

Tachyscellus badiipennis Hald., and *kirbyi* Horn, New Haven, not rare: *T. nigrinus* Dej., Pomfret, April 10, two specimens.

MISCELLANEOUS.

Xenodusa cava Lec. Lyme, May 1, several under stones with ants. The trees on the station grounds are banded with tree tanglefoot about five or six feet above the ground, principally to catch the females of the fall canker worm; incidentally we find quite a variety of insects thereon. On August 3, I found *X.*

cava in numbers caught in this sticky trap; the ants also fell victims. Placing the specimens in a solution of alcohol removes all traces of the tanglefoot.

Among some Staphylinidæ sent to Major Thomas L. Casey for identification, a few proved to be new species and were described in "Memoirs of the Coleoptera II, 1911," as follows:

Atheta vierecki Casey. Double Beach—H. L. Viereck.

Atheta irvingi Casey. Occurs at Stafford—W. E. Britton.

Sableta brittoni Casey. Westville—W. E. Britton.

Datomicra (*Hilarina*) *mina* Casey. Double Beach—H. L. Viereck.

Hoplandria brittoni Casey. Westville—W. E. Britton.

Strigota recta Casey. New Haven—H. L. Viereck.

Malachius æneus Linn. New Haven, June 2, on flowers.

Collops tricolor Say. Lyme, May 29, 1910. Occurred on lichen-covered ledges by the hundreds. Their object in confining themselves to the rock, I could not determine. Vegetation was scarce, and the only trees that grew nearby were cedars. We also have recorded from Connecticut.—*C. eximius* Er. New Haven—B. H. Walden; *C. vittatus* Say, Stratford—August 17, H. L. Viereck; *C. quadrimaculatus* Fabr. occurs throughout the state.

The arc lights have great attraction for Scarabæidæ, *Lachnosterna* predominating, *L. ilicis* Knoch occasional and *L. crenulata* Froehl. very common. Many others, *Copris*, *Trox*, *Ligyrus*, *Dyscinetus trachypygus* Burm., *Cotalpa lanigera* Linn. are very common at times, and occasionally *Aphonus castaneus* Mels.

Diplotaxis atlantis Fall. occurs everywhere, at lights, under stones and on plants; we have records of two other species occurring here, *liberta* Germ. and *sordida* Say, but they are rare.

Polyphylla variolosa Hentz. One specimen from Wallingford, July 7, J. K. Lewis.

Gnormius maculosus Knoch. New Haven, June 19, 1910. I found this example flying about the flowers of a species of *Cornus* on the summit of West Rock.

Euphoria (*Cetonia*) *aurata* Linn. Doctor Britton found this European species among imported nursery stock. (See Ninth Rept. State Ent. Conn., p. 374, Plate XVI, 1910.)

A number of very interesting species of Longicorns were taken from under gypsy moth bands at Wallingford by Mr. Caffrey and his assistants; this idea might be employed very successfully as a means of collecting tree-infesting insects.

Oberea oculata Linn. This is a European species collected at New Haven, July 9, by Mr. Walden; one specimen being taken near the Experiment Station. It is recorded as living in willow.

Pytho niger Kirby and *planus* Oliv. Windsor, January 2, 1907. Taken from cells under bark of dead and dying white pine—A. F. Hawes.

Rhipiphorus limbatus Fabr. and *flavipennis* Lec. Common in flowers near the Station.

Tricrania sanguinipennis Say. Lyme, April 3, on plowed ground in which a species of bee had made numerous burrows.

Homorus undulatus Uhler. New Haven. Common Disfigures the leaves of lily-of-the-valley on the Station grounds. (See Fifth Rept. State Ent. Conn., p. 259, Plate VI.)

Otiorhynchus sulcatus Fabr. and *O. ovatus* Linn. Very common in Connecticut, and occur in numbers at arc lights

Barypithes pellucidalis Boh. New Haven, May. Common at arc lights.

Stephanocleonus plumbeus Lec. Prospect, August 15—W. E. Britton. New Haven, May 23, July 13—B. H. Walden. Unusual in this section.

Phytonomus meles Fabr. This imported species discovered by Dr. E. G. Titus is very common in the vicinity of New Haven. During May, I found that it greatly outnumbered *P. punctatus* Fabr. and *nigrirostris* Fabr. Taken also in Meriden, May 29, by W. E. Britton.

NOTES ON A SARCOPHAGID FOUND IN A TURTLE.

From rather a large number of native turtles collected in the vicinity of New Haven, Conn., for dissecting purposes at the Sheffield Scientific School of Yale University, one was found to be infested in the axilla with maggots of a Sarcophagid.

The maggots, although nearly full grown, were only noticeable after close observation as they were well concealed within a blackened, elevated, horny funnel about 1 cm. in diameter and nearly 1 cm. in depth. The extreme edge of the funnel was composed of the scales of the turtle standing nearly perpendicular to the surface of the body, gradually becoming thicker with the integument as it continued inward. On removing a portion of the blackened material within the funnel, six large maggots were disclosed, apparently feeding on the fresh adipose tissue. The turtle was killed and this infested portion with the maggots was removed and placed in a glass tumbler partly filled with earth and covered with cheese cloth. This was on April 26, and they pupated on the following day, having left the mass of tissue and crawled into the earth. The adult flies began to emerge on May 22 and continued until May 24, when the total number was complete. These, as well as the puparia were determined definitely as Sarcophagids, but owing to the somewhat chaotic conditions of this family the identity of the species was uncertain. The surroundings being unfavorable for keeping them alive, they all died by May 28 and the writer was unable to try with them any reproduction experiments on caterpillars.

T. L. PATTERSON.

[Mr. Patterson has asked me to add a short note regarding similar recorded cases of turtles infested by Sarcophagid larvæ. Apparently the first reference to such larvæ, definitely shown to belong to a species of this family was made in 1890 by Wheeler (a supposed Bot-fly Parasite of the Box-turtle. PSYCHE, Vol. 5, p. 403). He succeeded in rearing adults of a *Sarcophaga* from larvæ found in a pocket beneath the skin upon the neck of a turtle which had been taken near Windsor, Connecticut. Wheeler refers to a previous account by Packard (American Naturalist, Vol. 16, p. 598, 1882) of similar larvæ from the neck of the same species of turtle collected at Middleboro, Massachusetts. As no adults were reared, Packard supposed the larvæ to be those of some species of bot-fly. More recently, Mr. H. G. Barber has described at a meeting of the New York Entomological Society, a turtle similarly parasitized.] EDITOR.

ERRATA.

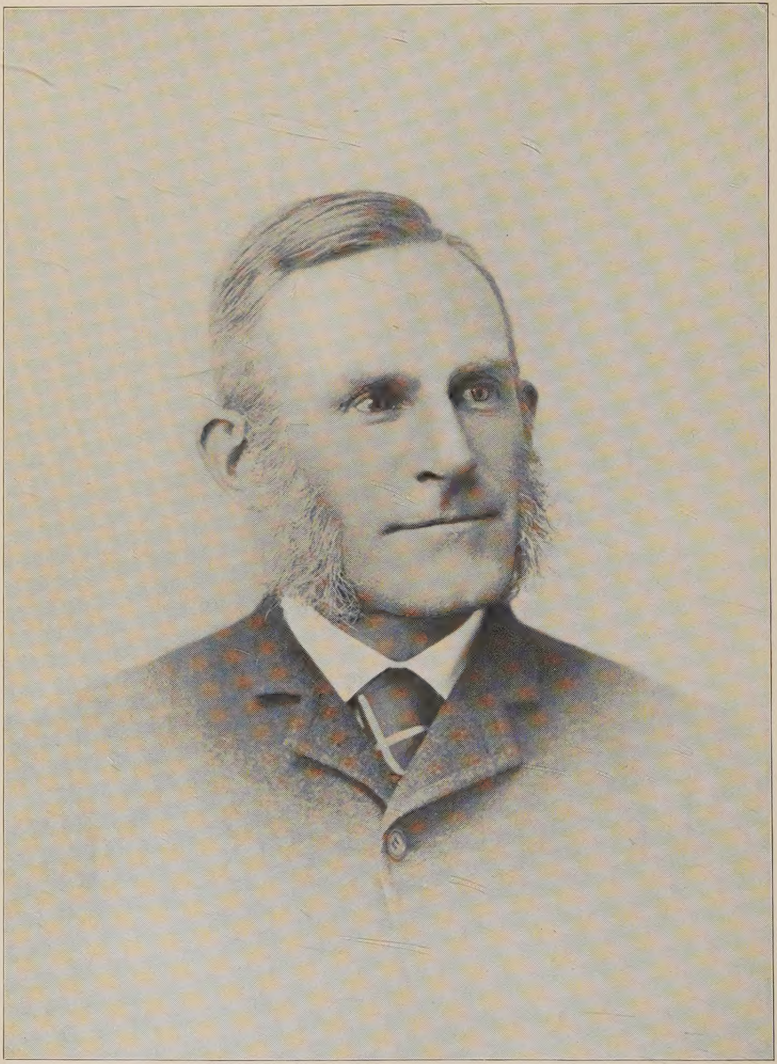
The following corrections and additions should be made to the article by C. S. Ludlow on "The Philippine Mosquitoes," published in the last number of PSYCHE:

Page 125, under Anophelinæ, add to the list, *Myzomyia ludlowii* Theob.

Page 126, second column, line 39, for *ludlowii*, read *ludlowi*.

Page 127, first column, line 1, for *aureosqumatus*, read *aureosquamatus*.

Page 127, second column, remove *Hodgesia* Theobald, *niveocaputis* sp. nov., and place under Urotaeniinæ. This genus does not belong to the Harpagomyinæ, and its appearance is an oversight, due to the original arrangement.



SAMUEL HUBBARD SCUDDER